

## Press release

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Page 1/3

### **Innovative approach to CO<sub>2</sub> reduction in steelmaking process: NRW's Economics Minister Prof. Dr. Andreas Pinkwart hands over funding notice for joint REDERS project to thyssenkrupp Steel, Hüttenwerke Krupp-Mannesmann, TSR Recycling and VDEh-Betriebsforschungsinstitut**

Intensive research is currently being conducted into modern and more climate-friendly processes in steel production. In an effort to find a solution that can be implemented in the short term, the steel producers thyssenkrupp Steel and Hüttenwerke Krupp Mannesmann are cooperating with the recycling company TSR Recycling GmbH & Co. KG under the scientific leadership of VDEh-Betriebsforschungsinstitut GmbH.

The **REDERS project (Reduzierte CO<sub>2</sub>-Emissionen durch Erhöhung der Recyclingquote bei der Stahlherstellung – reduced CO<sub>2</sub>-emissions through increased recycling quota in the steelmaking process)** is to strengthen the recycling cycle of iron and steel, while reducing the CO<sub>2</sub> emissions of thyssenkrupp Steel and Hüttenwerke Krupp Mannesmann. Funding in the amount of 6.4 million euros has now been granted for this circular economy project aimed at conserving resources as part of the "Programm für rationelle Energieverwendung, regenerative Energien und Energiesparen – progres.nrw – Programmbereich "Innovation " (program for rational use of energy, renewable energies and energy saving – program section "Innovation"). The funding by the state of NRW is closely linked to the NRW's initiative IN4climate.NRW.

Minister Pinkwart: "Transformation towards a future-oriented and climate-friendly industry is a task we must tackle with joined forces. With NRW's initiative In4climate.NRW, we have started to cooperate early on with many innovative industrial companies in our state and are supporting them with targeted funding. Efficiency improvements have a direct impact on climate protection, especially in the local energy-intensive industry. I firmly believe that this project will lead the way for the entire industry".

### **New processing technology to be installed on Schrottnisel in Duisburg**

The innovative manufacturing process developed by TSR produces a novel certified product from conventional starting materials - i.e. consumer scrap - which permits use in the blast furnace and an increase in the proportion of recycled material in the converter process. CO<sub>2</sub> emissions can thus be significantly reduced by increasing the share of recycled material in the steelmaking process.



Bernd Fleschenberg, COO TSR: “The goal of the joint project is to produce a high-quality and certified product from conventional starting materials. This novel product will allow us to sustainably cover a significant part of the future raw material requirements of the European industry. In this way, we are making an important contribution to climate and resources protection and to achieving the targets under the European Green Deal”.

### Novel process offers considerable CO<sub>2</sub> reduction potential

Through the use of the recycled product, the amount of injection coal and the coke consumption in the blast furnace can be reduced: The use of one tonne of the recycled product can thus save about one tonne of CO<sub>2</sub>. In the converter, it would be a reduction of 1.7 tonnes of CO<sub>2</sub> per tonne of recycled material used. Thereby, the project complements the transformation paths pursued by thyssenkrupp Steel and HKM towards climate-neutral steel production. Dr. Arnd Köfler, CTO thyssenkrupp Steel: “We need to make rapid progress in reducing CO<sub>2</sub> emissions. Therefore, tkSE uses all possibilities to avoid CO<sub>2</sub> in the conventional production process as well. The use of high-quality scrap-based recycled material in the blast furnace is an innovative step. We are glad that this approach is now promoted by the Ministry of Economics”.

It is expected that regular use of the recycled material produced with the new process will begin in the autumn of 2022.

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**Die TSR Recycling GmbH & Co. KG** – a company of the REMONDIS Group – is one of the leading companies for the recycling of ferrous and non-ferrous metals. At its 160 locations throughout Europe, around 3,900 employees perform all tasks involved in metal recycling. Aside from purchasing, selling and processing, TSR also provides all services for industry, commerce and municipalities relating to scrap metal recycling. By recycling 8.5 million tonnes of ferrous and non-ferrous metals, high-quality recycled raw materials can be produced, which can then be reused in production. TSR is thus an important link in the circular economy and helps conserve resources and the environment on a sustainable basis.

**thyssenkrupp Steel** is one of the world's leading suppliers of high-grade flat steel and stands for innovations in steel and high-quality products for innovative and demanding applications. With around 27,000 employees, the company produces about 11 million tonnes of crude steel per year – making it Germany's largest flat steel manufacturer. Its capabilities range from custom material solutions to material-related services.

**Hüttenwerke Krupp Mannesmann, HKM for short**, are an integrated iron and steel works specializing in the production of steel and starting products for the processing industry. Our slogan "Steel. This is us" stands for long years of experience and extensive expert know-how. With a workforce of around 3,000 employees, we produce about four million tonnes of steel in the South of Duisburg! We are able to produce more than 1,000 different steel grades at technically and economically optimized production stages with the highest standards of quality and environmental protection.

**VDEh-Betriebsforschungsinstitut**, based in Düsseldorf, is one of Europe's leading institutes for application-oriented research and development in the process industry. Increasing demands on product quality, production costs, CO<sub>2</sub> emissions and plant utilization are posing new challenges for the steel industry. The BFI offers tailored innovations along the entire process chain of steel production, from the input materials down to the end product. Its research activities include CO<sub>2</sub> reduction and energy efficiency, process and process chain optimization, circular economy, Industry 4.0 and measurement technology.